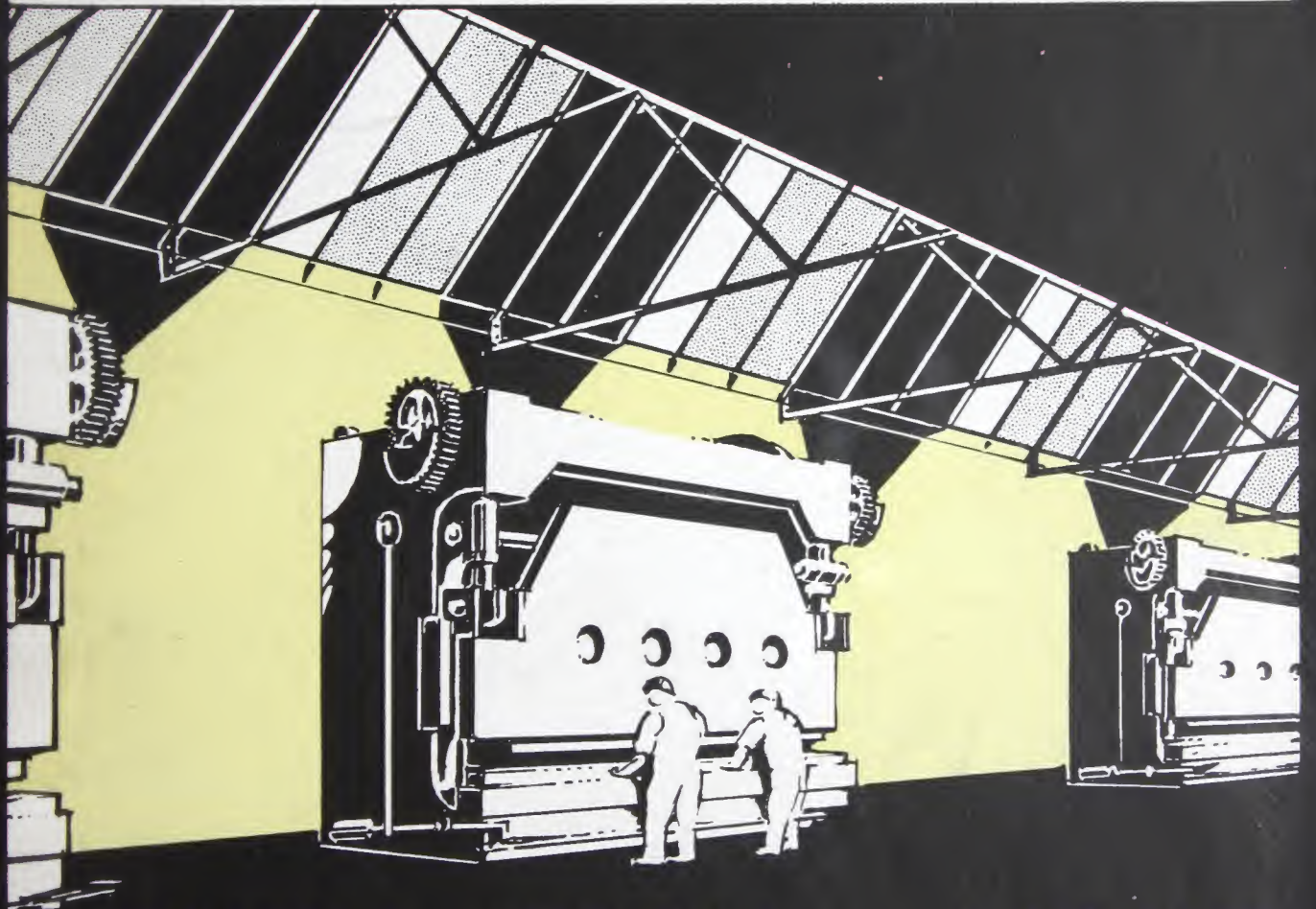


HOPE'S SLIDING SHUTTERS



*VENTILATION & LIGHT
during the DAY and a
BLACK-OUT at NIGHT*

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HOPE'S SLIDING SHUTTERS *for* *ROOF and VERTICAL GLAZING*

Since being introduced in the early days of the war, HOPE'S OUTSIDE and INSIDE shutters have been fitted to many large works and Army Depots in this country and they are now regarded as necessary for any industrial building where natural light is required by day and efficient blackout by night.

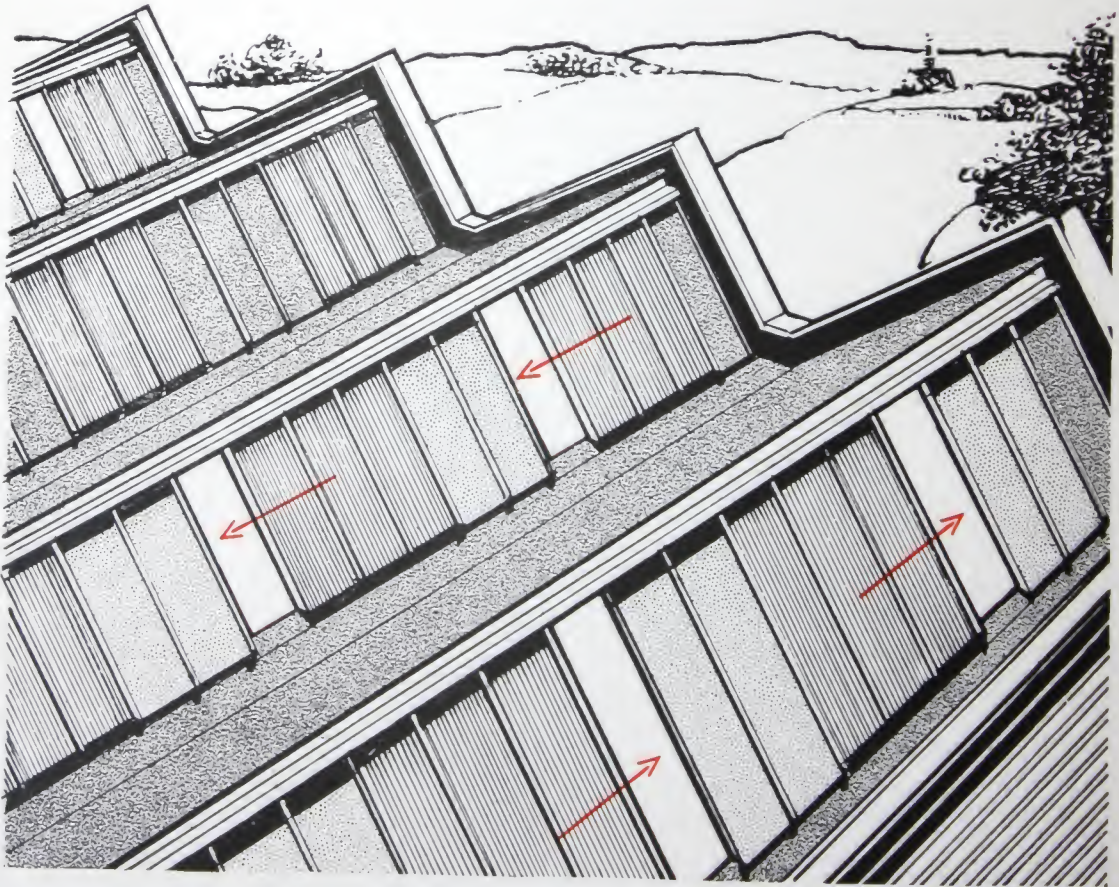
Ventilation In addition to providing daylight, HOPE'S OUTSIDE SHUTTERS can be utilised to provide ventilation by the simple expedient of removing either one or two panes of glass. These open spaces can be rapidly covered over in bad weather and at night time. (See page 2.)

Where buildings are designed without roof lighting HOPE'S OUTSIDE SHUTTERS can be applied to cover permanent openings in the roof. Thus when shutters are open, not only are ventilation and daylight provided, but such openings allow for the rapid dispersal of fumes where these are generated, as in foundries, forges, etc.

HOPE'S SYSTEM *of* ROOF SHUTTERING

has been successfully installed in numerous Government controlled factories of premier importance in which the following conditions have been demanded:

- (a) Complete and reliable blackout to the whole area of the roof.
- (b) Admission of natural light during the daytime (up to a maximum of 50 per cent of the skylight).
- (c) Quick and reliable operation for long ranges of shuttering.
- (d) Minimum amount of maintenance or repair.
- (e) Simple renewal of glass in event of breakage.



SHUTTERS ARE SHEWN IN OPEN POSITIONS AND
ARE CLOSED IN DIRECTION OF ARROWS

DESCRIPTION

HOPE'S SLIDING SHUTTERS are constructed of steel, asbestos sheets or other suitable material. They are provided with wheels and guide rollers which are fitted with self-lubricating bearings and slide over panels of unobscured glazing. A continuous pressed steel member forming both head weathering and track is fitted on the top of the glazing and a substantial rolled tee track at the bottom.

CONTROL

This may be either by hand winch or electrical gearing operated by push button, the shutters being moved by a system of positive tension transmission. Against any failure of the electrical supply an alternative hand-winding mechanism is provided.

FINISH

All steel parts are painted with red oxide paint before despatch.

FIXING

It is essential that HOPE'S contract shall always include fixing the shutters.

SERVICE

Once the shutters are installed, upkeep expenses should be negligible except for painting the outside of the sheets about every three or four years. Periodic lubrication is necessary and cables may require occasional 'taking up' and customers are invited to avail themselves of HOPE'S Service Department for periodical inspection and any necessary adjustments at a small charge.

COST

The cost varies considerably owing to various factors which have to be met on different types of roofs. It can be stated, however, that the greater number of shutters which can be operated from one set of gear, the more economical the scheme becomes, and this applies especially to our electrically controlled systems which are strongly recommended.

ESTIMATES

It is nearly always advisable to make an inspection before an estimate is submitted, and we will at any time send a technical representative to take particulars and advise upon the most suitable scheme, free of charge or obligation.

OUTSIDE OR INSIDE SHUTTERING?

Generally speaking, we advocate the use of OUTSIDE shuttering.

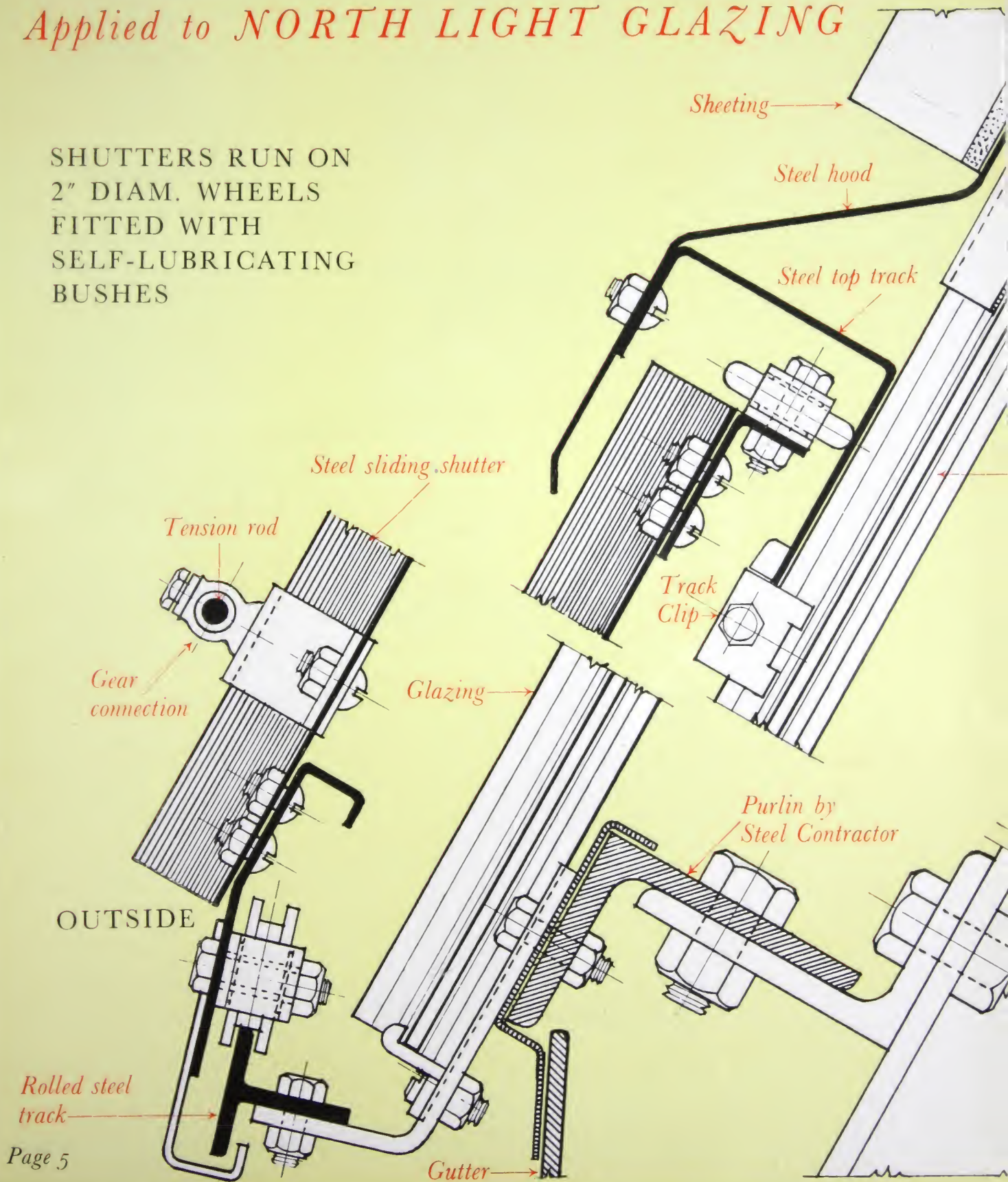
1. It completely blacks out the glass and prevents any reflection from moonbeams or searchlights at night.
2. When glass is broken, outside shuttering even when damaged, provides a ready means of rendering a building weatherproof.
3. Provided gutters are of ample width, the shutters are easily accessible for painting or repair.
4. Any camouflage scheme can be completed with the shutters in the closed position.

Whatever may be said for inside shutters, it must always be remembered they are difficult to apply in buildings of great height and impossible where shafting, piping, electrical leads, etc. are in the way.

HOPE'S *Outside* SLIDING SHUTTERS

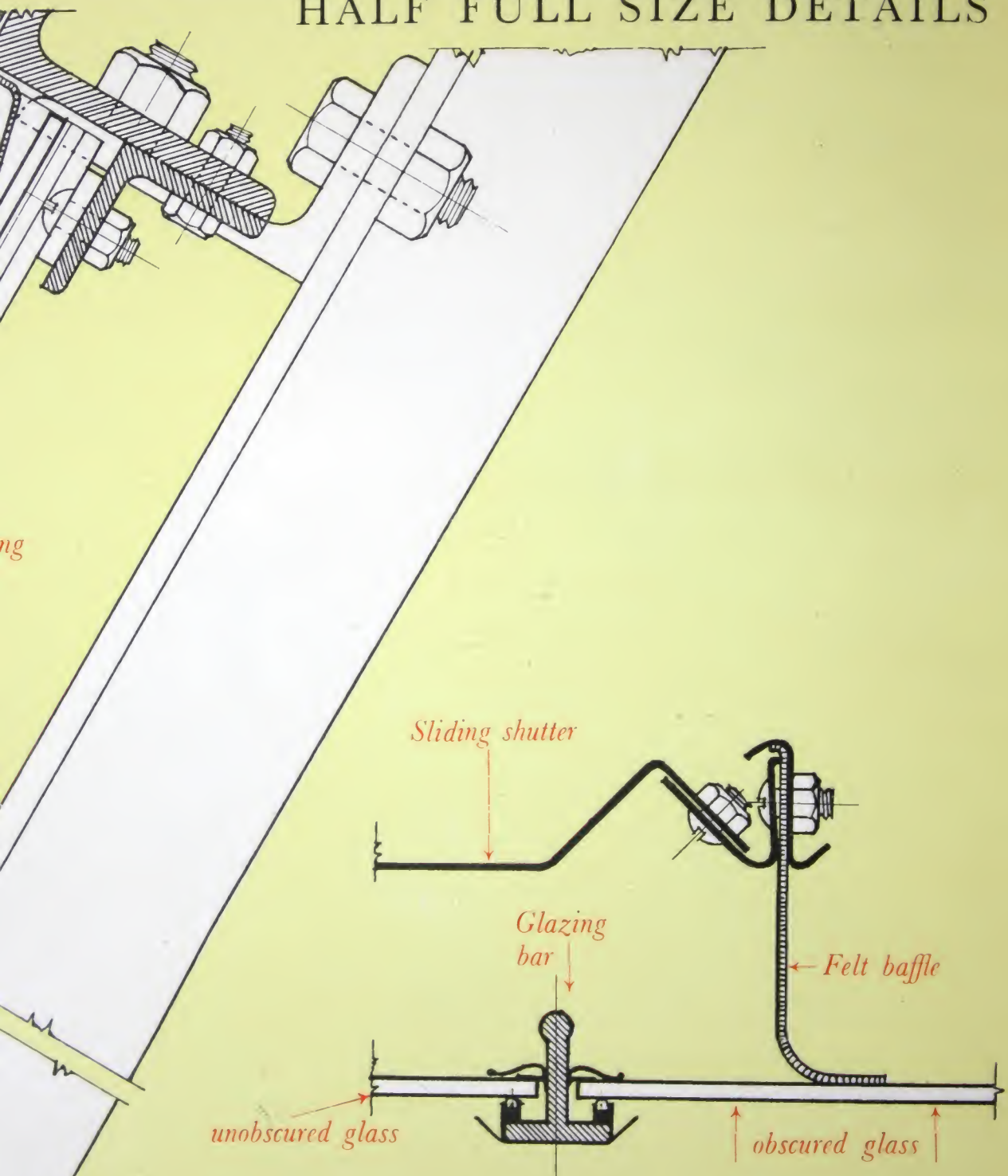
Applied to NORTH LIGHT GLAZING

SHUTTERS RUN ON
2" DIAM. WHEELS
FITTED WITH
SELF-LUBRICATING
BUSHES



ING SHUTTERS

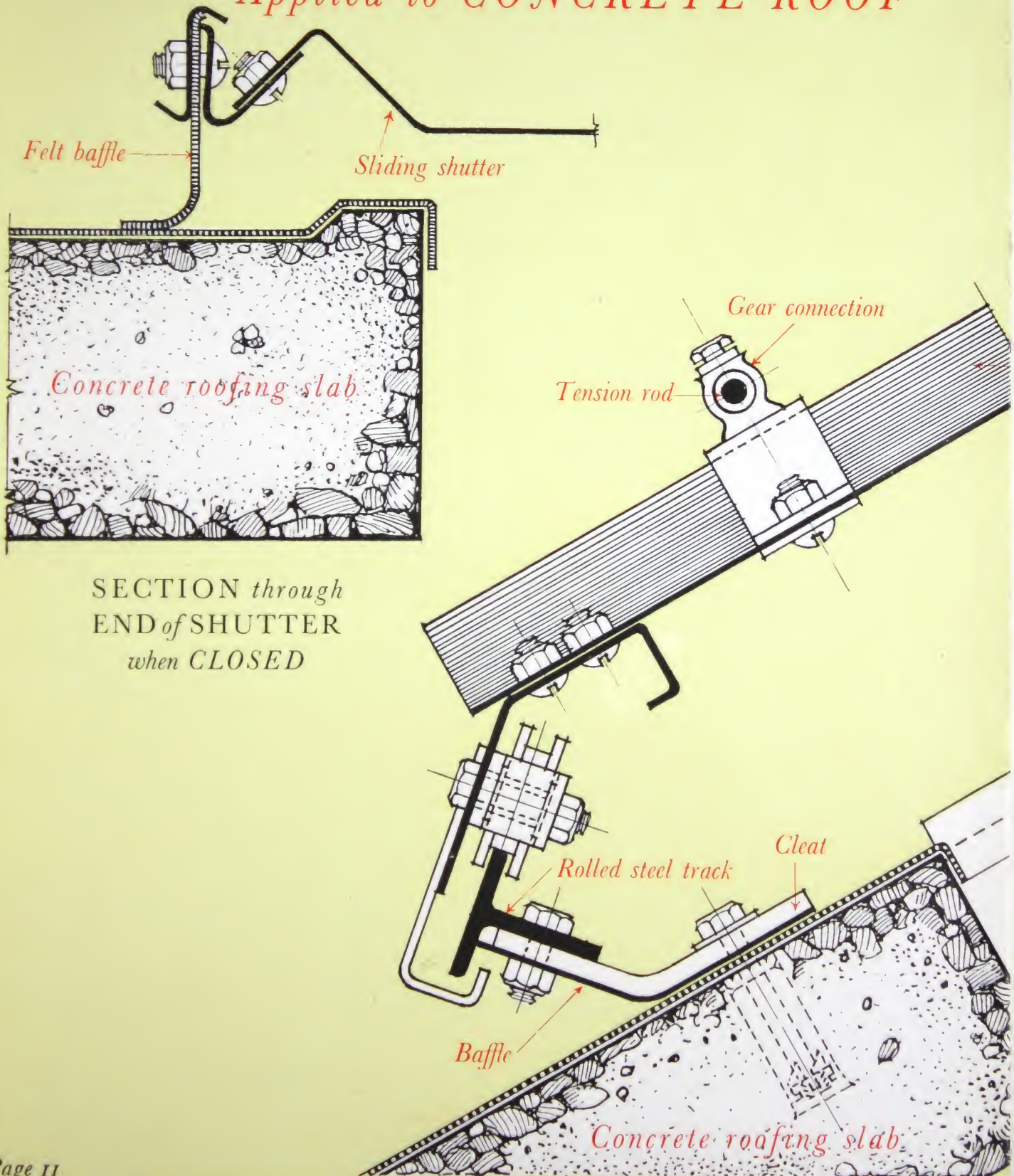
HALF FULL SIZE DETAILS



SECTION *through* END of
SHUTTER *in* CLOSED POSITION

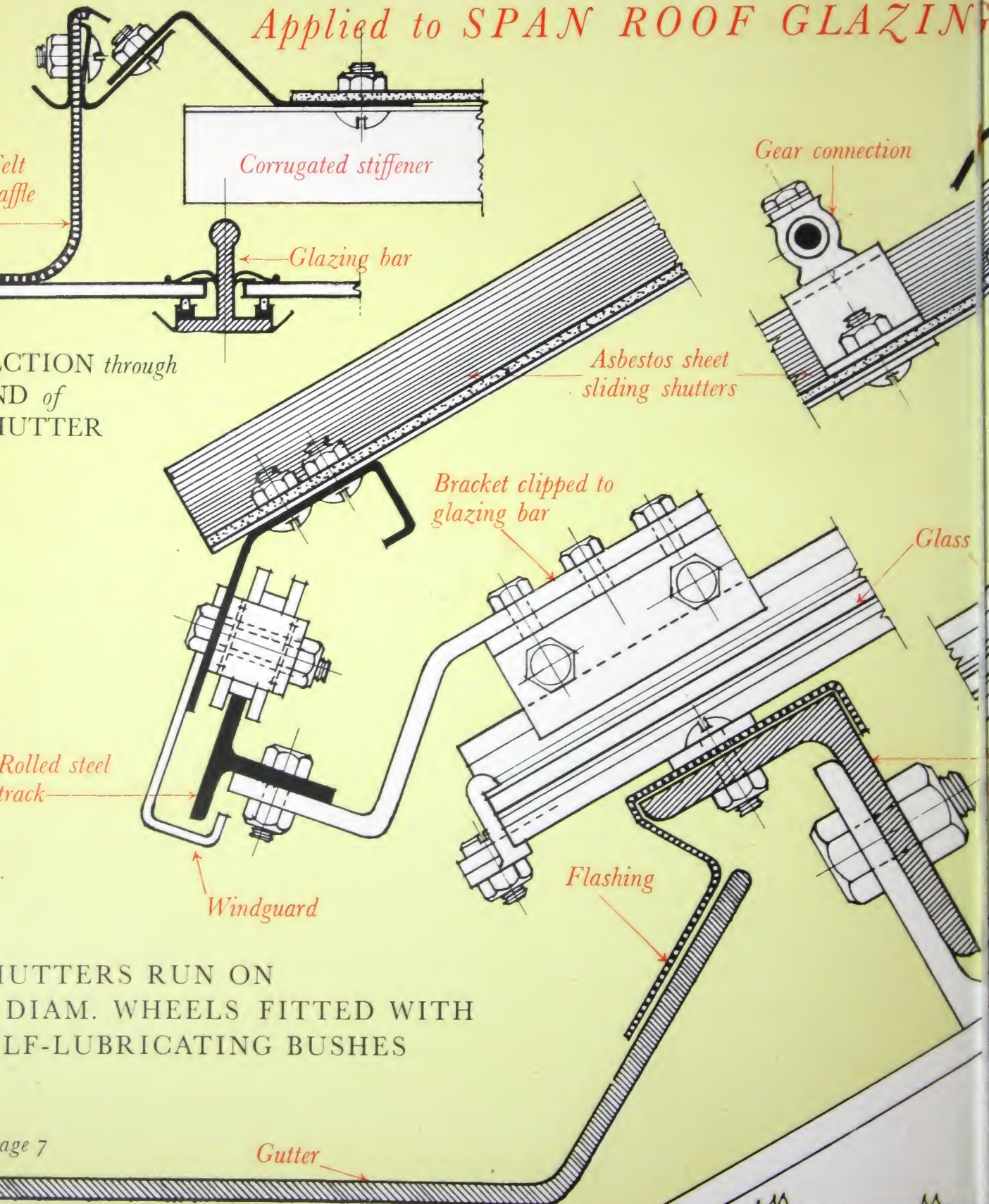
HOPE'S *Outside* SL

Applied to CONCRETE ROOF

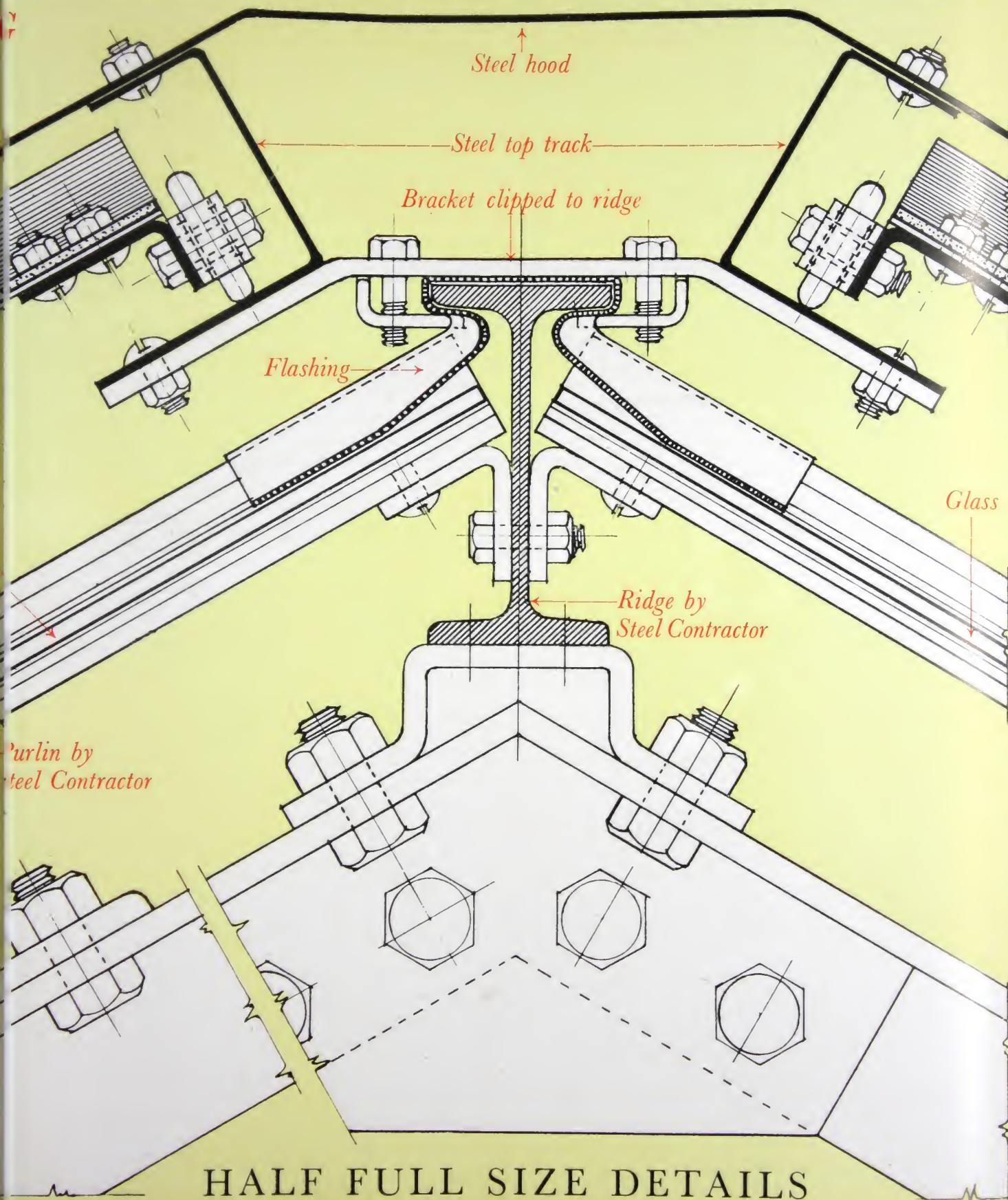


HOPE'S *Outside* SL

Applied to SPAN ROOF GLAZING



DING SHUTTERS



HOPE'S *Inside* SL

Applied to NORTH LIGHT GLAZING

SHUTTERS RUN ON
2" DIAM. WHEELS
WITH SELF-LUBRICATING
BUSHES

OUTSIDE

Ridge cap

Glass

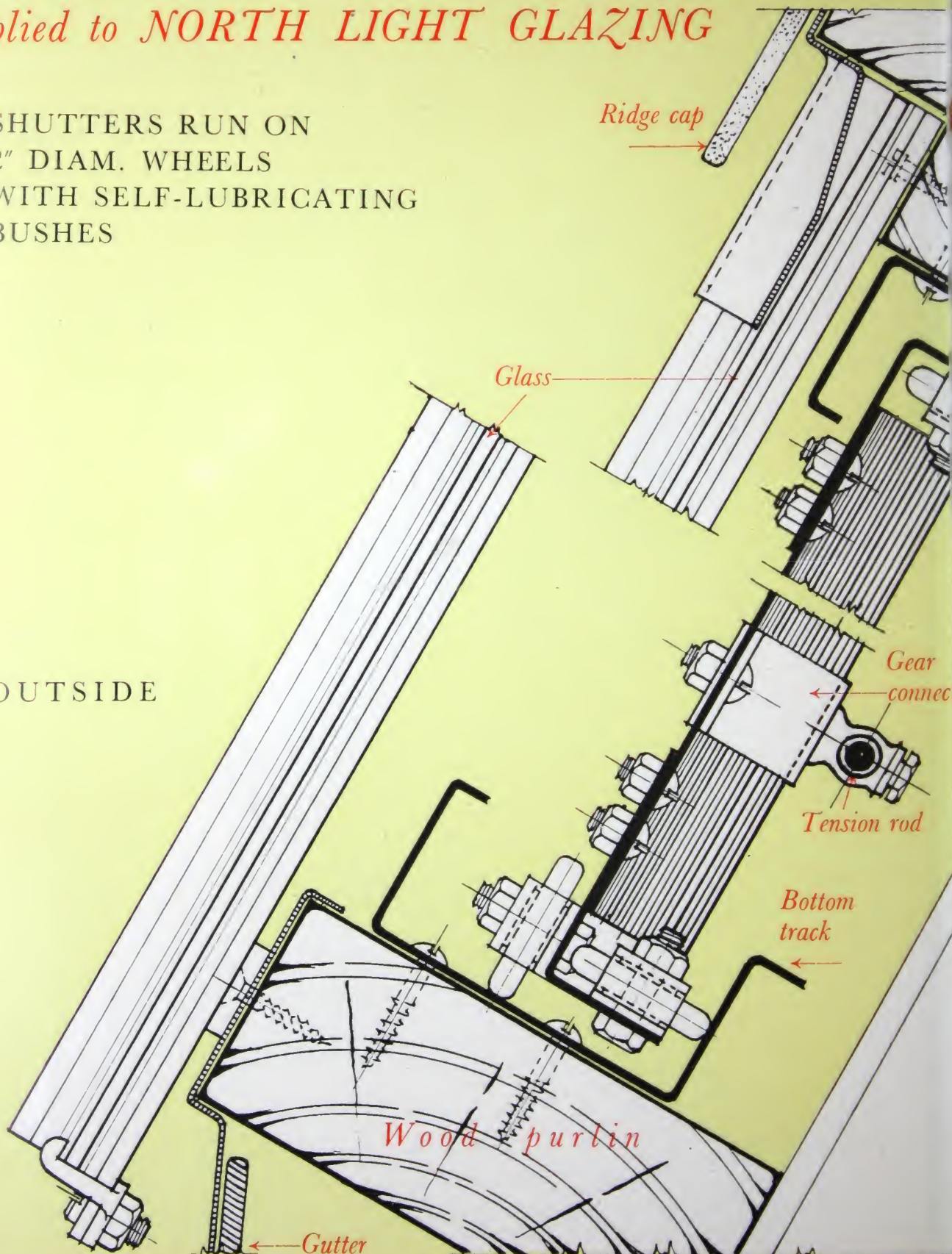
Gear
connec

Tension rod

Bottom
track

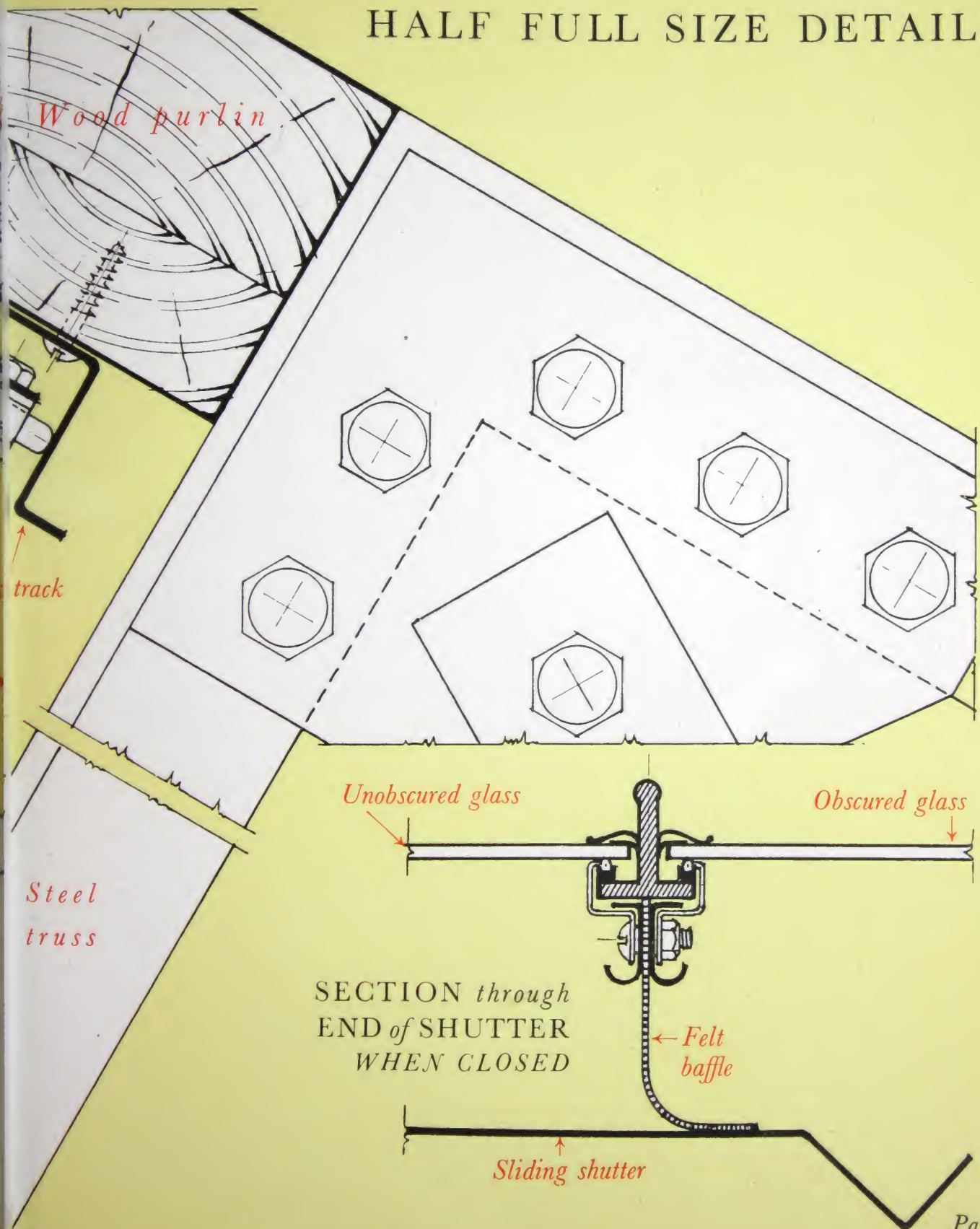
Wood purlin

Gutter



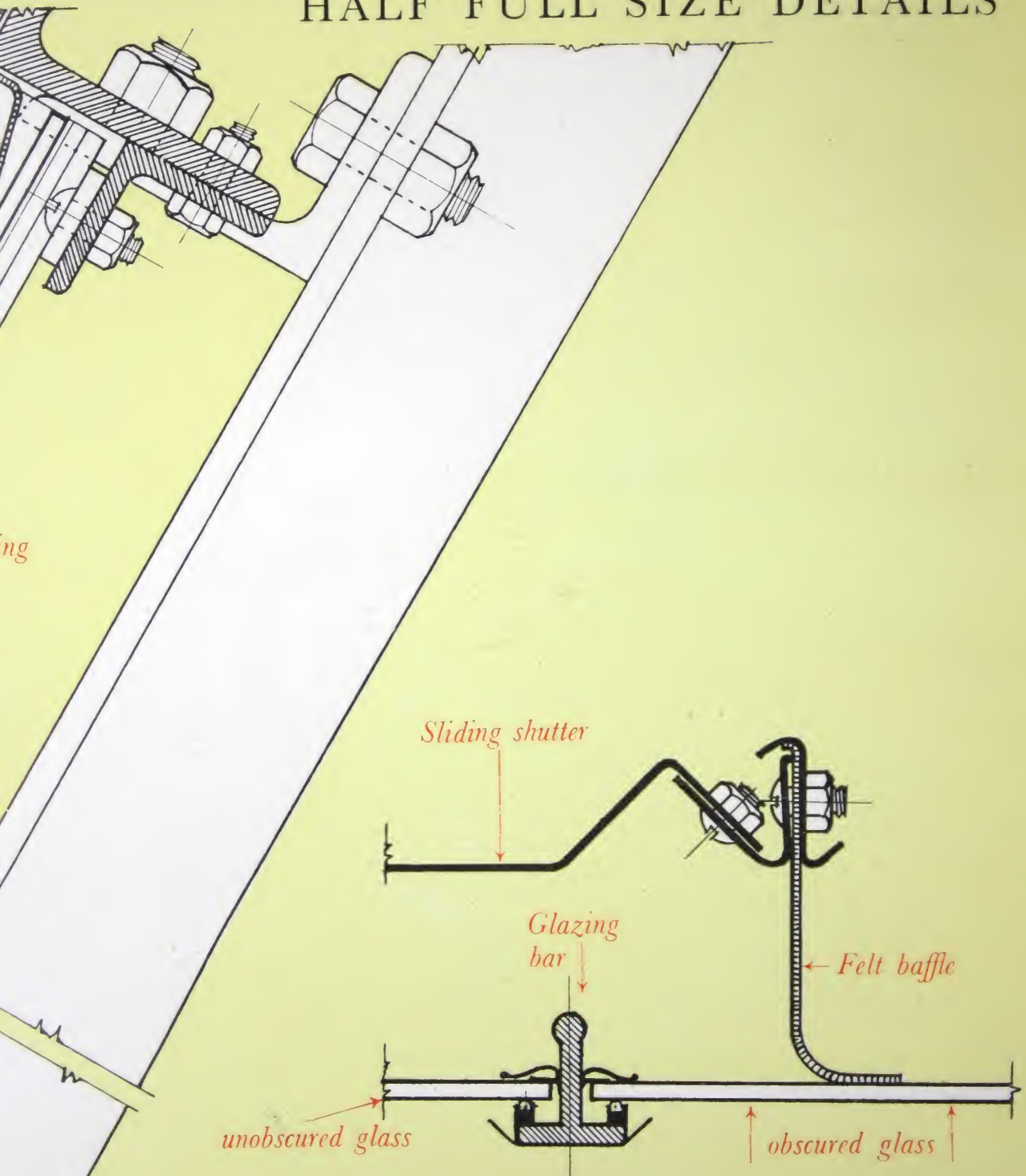
SLIDING SHUTTERS

HALF FULL SIZE DETAILS



ING SHUTTERS

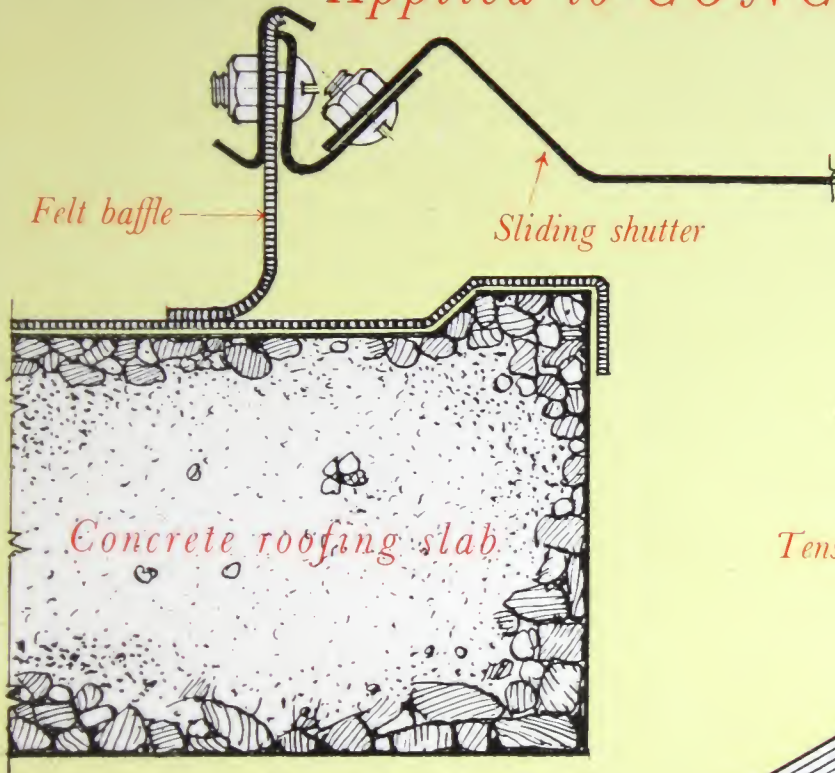
HALF FULL SIZE DETAILS



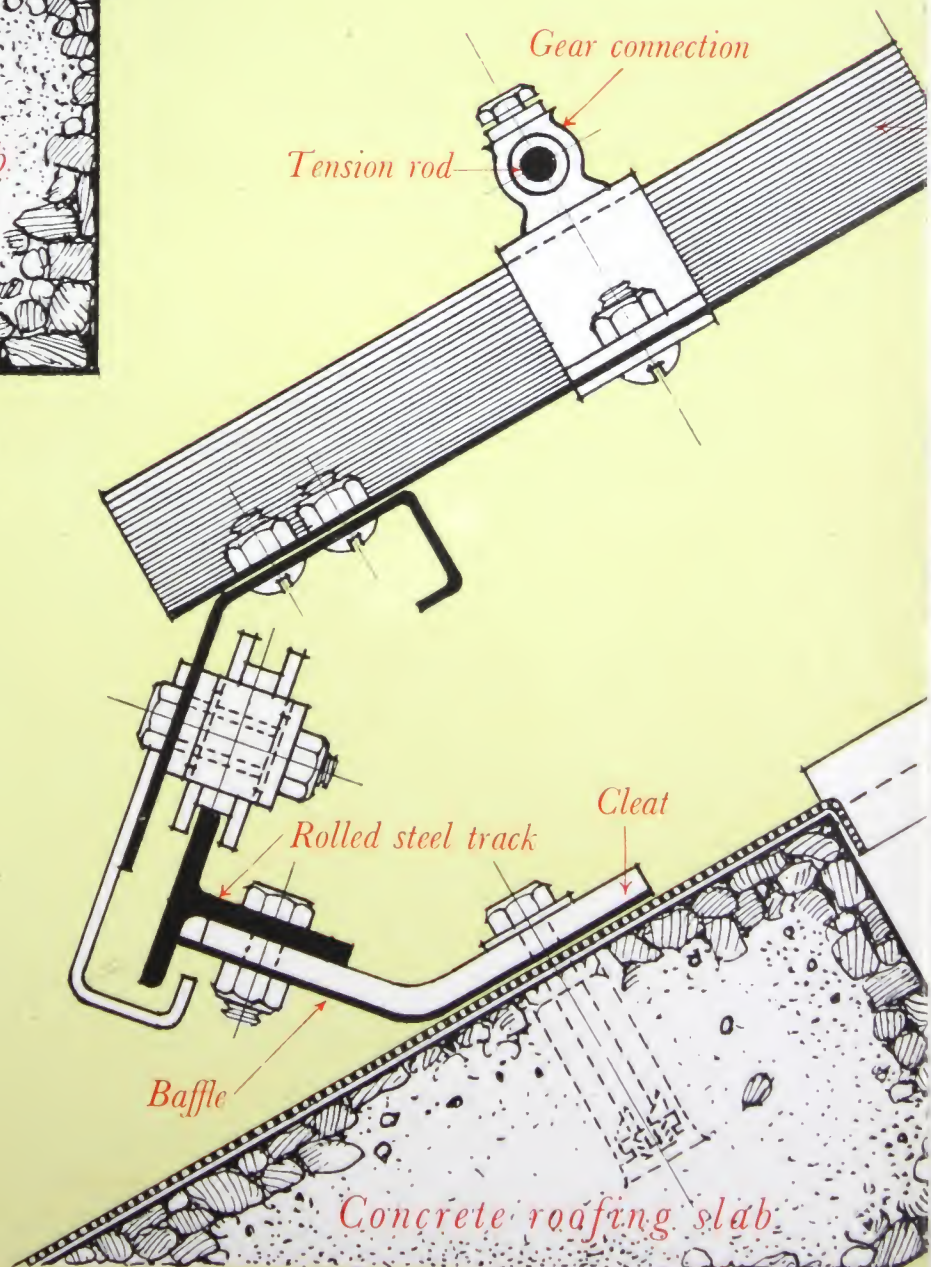
SECTION *through* END of
SHUTTER *in* CLOSED POSITION

HOPE'S *Outside* SL

Applied to CONCRETE ROOF

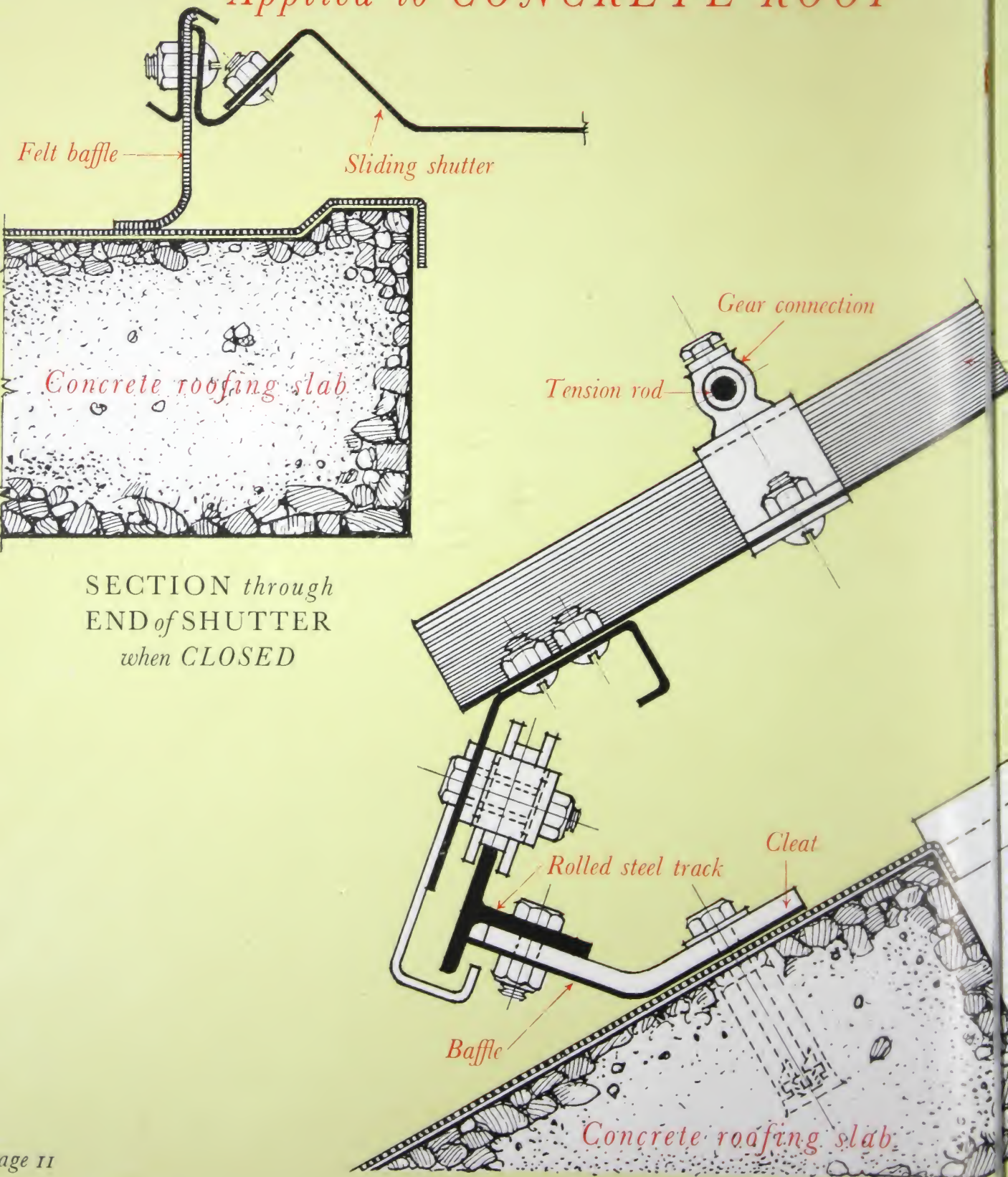


SECTION *through*
END of SHUTTER
when CLOSED



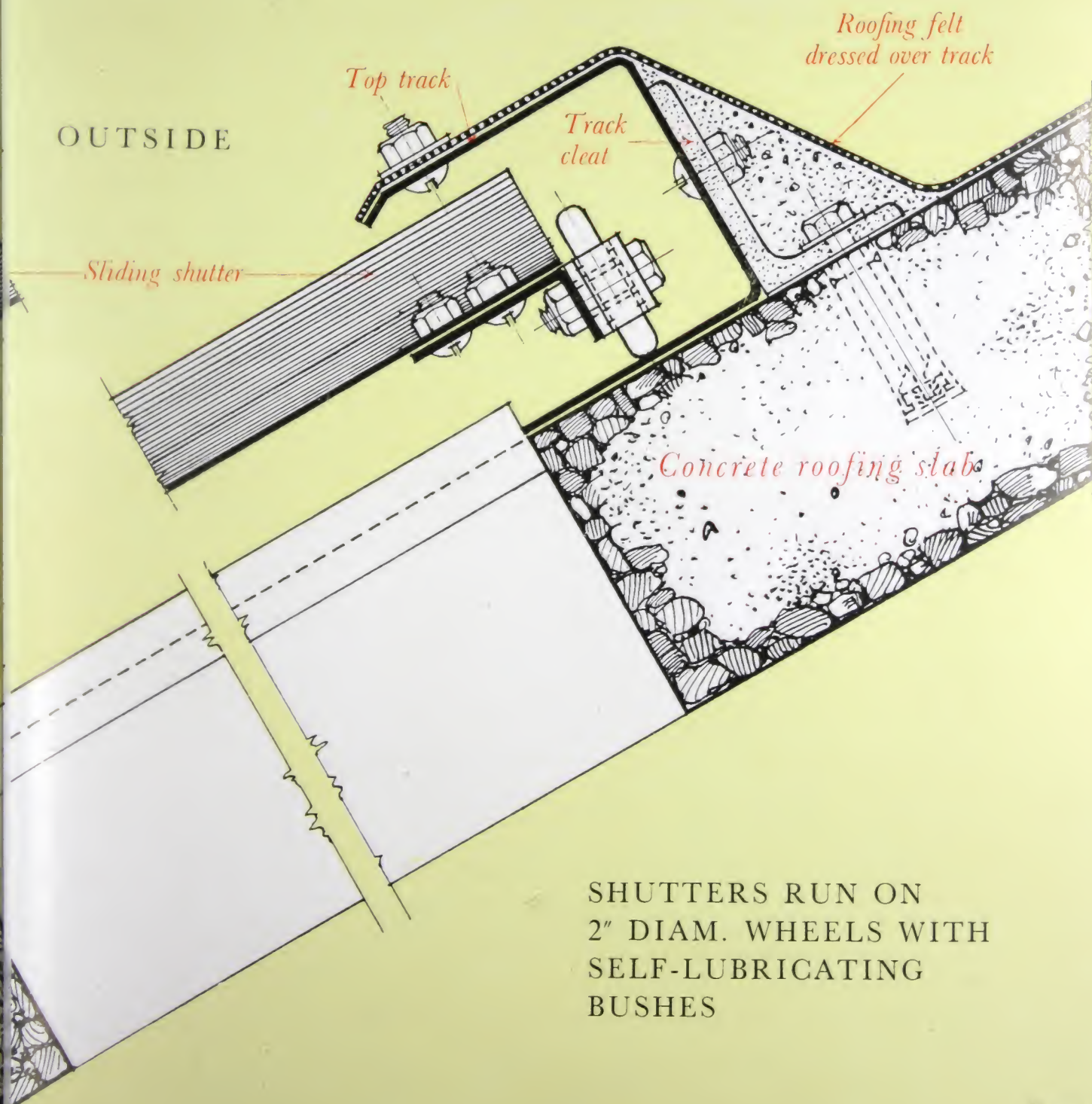
HOPE'S *Outside* SL

Applied to CONCRETE ROOF



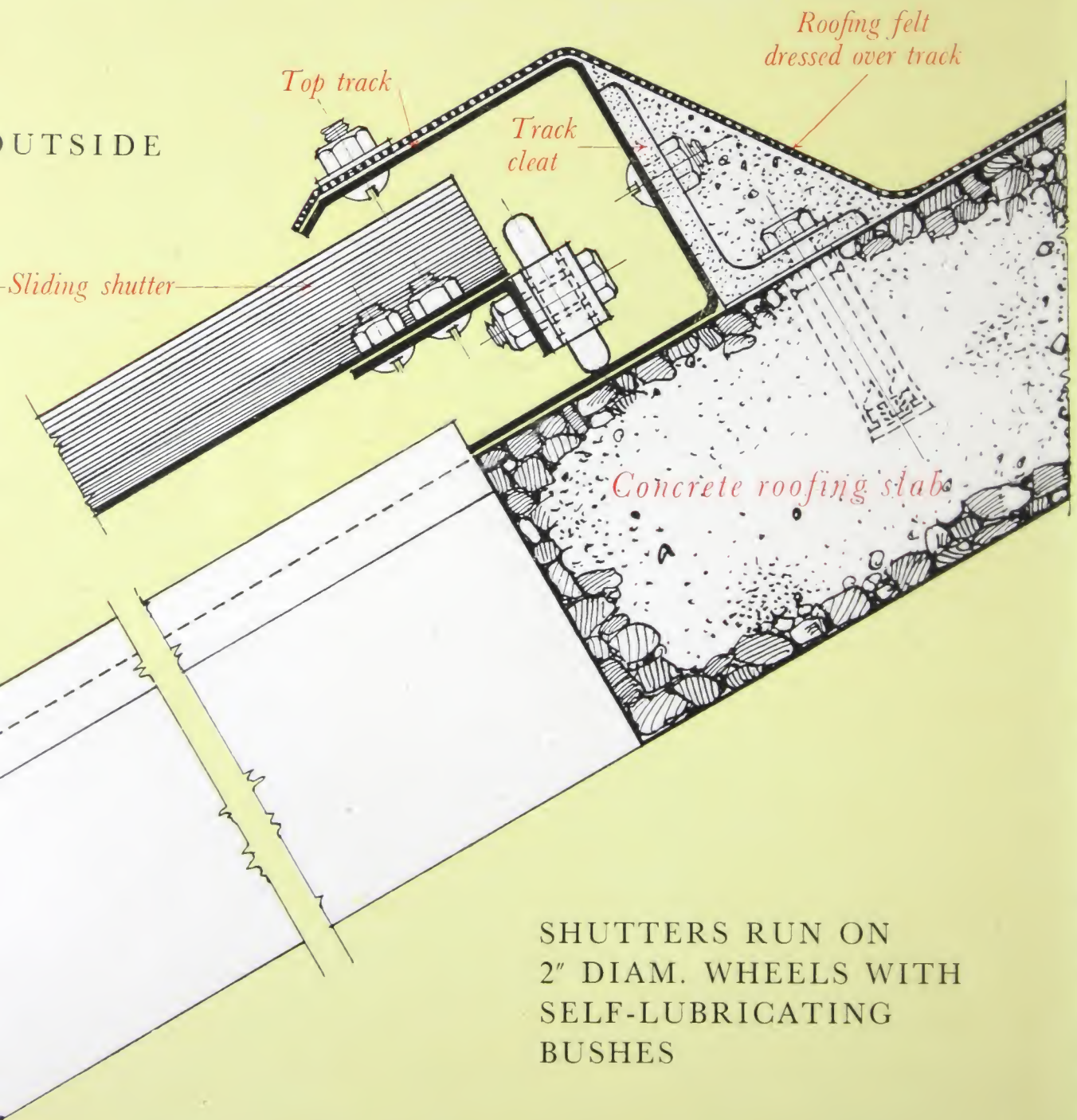
SLIDING SHUTTERS

HALF FULL SIZE DETAILS



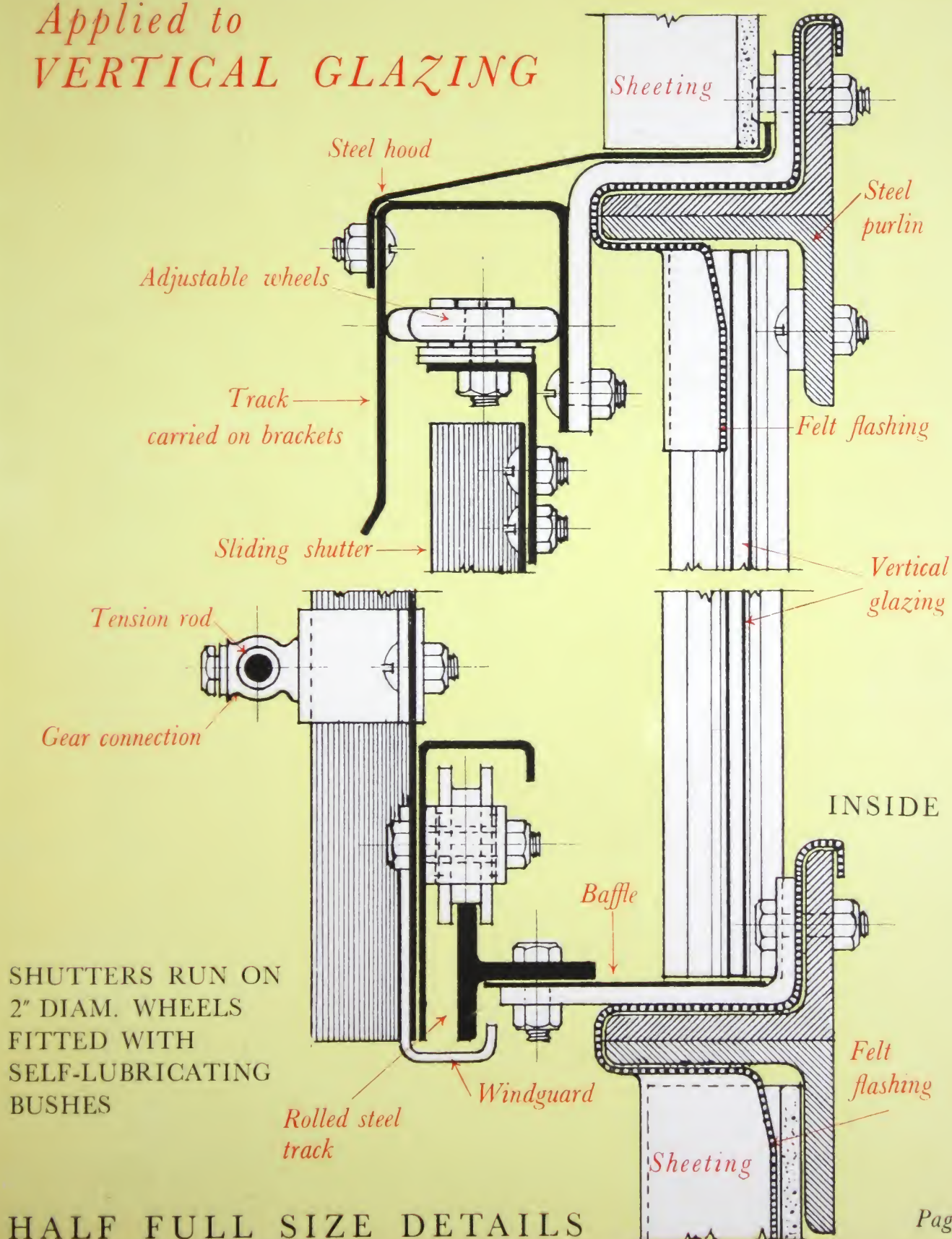
ING SHUTTERS

HALF FULL SIZE DETAILS



HOPE'S *Outside* SLIDING SHUTTERS

Applied to
VERTICAL GLAZING

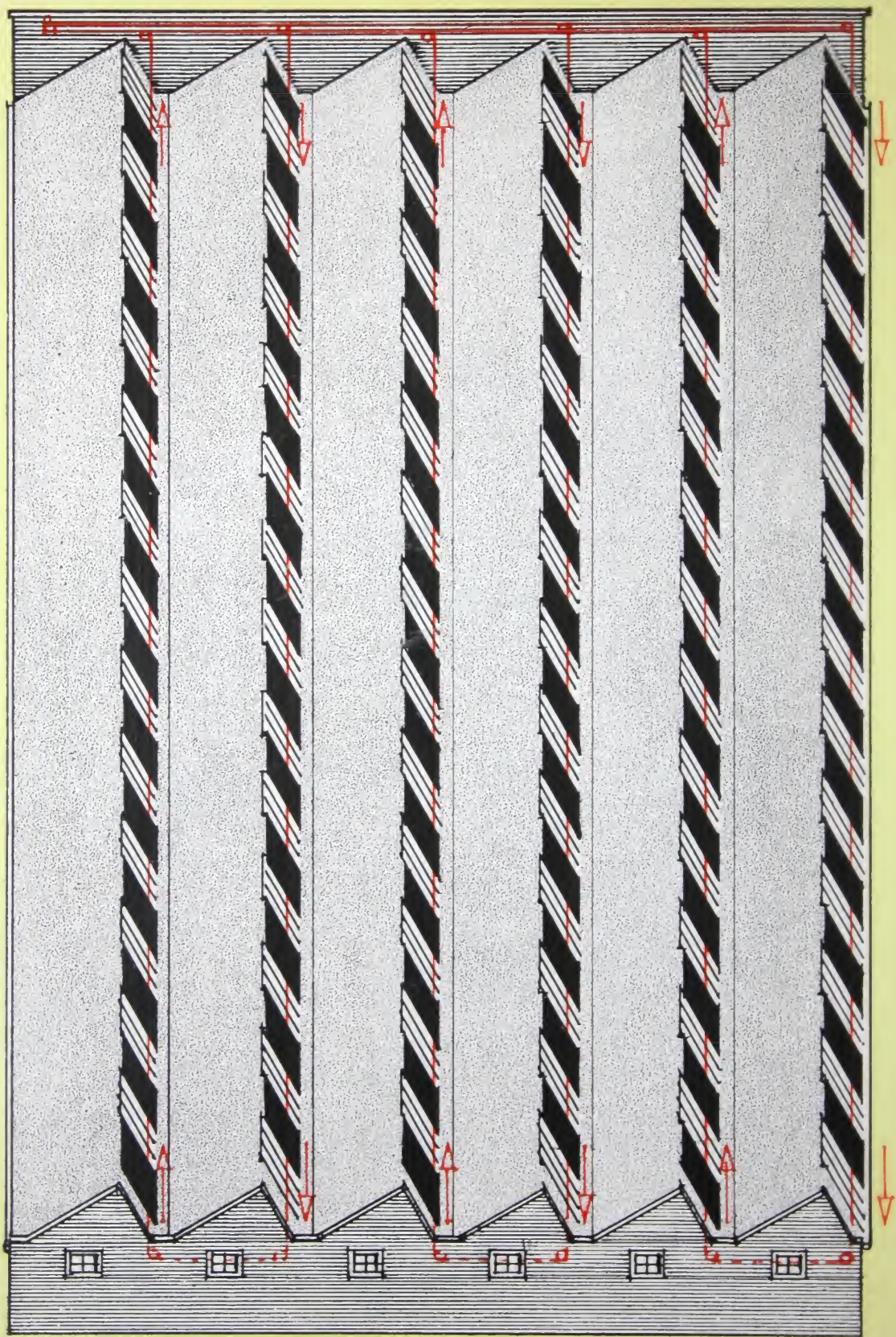


SHUTTERS RUN ON
2" DIAM. WHEELS
FITTED WITH
SELF-LUBRICATING
BUSHES

HALF FULL SIZE DETAILS

HOPE'S SLIDING SHUTTERS & GEAR

Applied to a NORTH LIGHT ROOF



FUEL SAVING AND DAYLIGHT

Apart from the physical and psychological effect of complete black-out on the health and efficiency of workpeople, the following figures clearly indicate the wastefulness of artificial lighting as compared with day lighting and mechanical blackout by efficient shutters.

FUEL CONSUMPTION FOR 1,000 FEET SUPER FLOOR SPACE

One kilowatt equals one unit and $1\frac{1}{2}$ lb. of coal is used to produce it. One 200 watt lamp set at ten feet gives 10 foot candles over 100 square feet. One thousand feet floor space requires, therefore, 10/200 watt lamps. Ten 200 watt lamps burn in 3,500 hours 7,000 units of electricity. 7,000 units require 4.7 tons of coal for their production.

An average munitions factory of say 100,000 square feet floor space permanently blacked out, is therefore, *wasting 470 tons of coal per year.*

The above figures are based upon complete blackout as against natural lighting, provided by 15% of skylight to floor space.

While it is impossible to give an estimate of the effect on output, it may be stated with certainty that there is:

- (a) Reduced output.
- (b) Poorer quality of finished goods.
- (c) Increase of scrap.
- (d) Increased cost of inspection.
- (e) Increase of factory accidents.

This is a very brief statement of the evils resulting from daily

blackout, but those interested are recommended to the following official documents:

The Health and Efficiency of Munition Workers (by H. M. Vernon).

Report of the Industrial Fatigue Research Board, No. 20.

Report of the Departmental Committee on Lighting in Factories,
from the Ministry of Labour and National Service Leaflet.

Report of the Industrial Fatigue Research Board, No. 23 (Medical
Research Council).

Annual Report of the Chief Inspector of Factories for the year 1939.

Industrial Lighting in Wartime (by H. C. Weston, F.I.E.S.).

Annual Report of the Chief Inspector of Factories for the year 1940.

HOPE'S will be pleased to arrange visits to factories where Shuttering can be seen in operation, and are glad to give the benefit of their experience to prospective customers, together with schemes and estimates of the cost.

It has been our experience that people who have been working under permanent blackout are amongst the first to proclaim the vast improvement of daylight with Hope's Shuttering. Where Shutters have been fitted to one section of a factory, the appeal for extension to other sections is generally immediate.



*Building with 50 per cent of existing glass roof covered by
electrically operated shuttering*

ROOF & WINDOW PROTECTION

HOPE'S have carried out many contracts for the supply and fixing of wire guards and wire netting since the introduction of the Factories (Glass Protection) Order and will give expert service and advice on these matters upon request.

Apart from the products described herein, HOPE'S are also supplying and fixing large quantities of roof glazing and steel windows in addition to their many and various wartime products, and many emergency contracts of this nature are being daily fulfilled.



*Photograph of exterior of roof shewing HOPE'S SLIDING SHUTTERS
which may be applied on the INSIDE or OUTSIDE of the glazing*

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List No. 225

Printed in England at The Curwen Press